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## **Egyptian agricultural trade pattern and competitiveness**

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# Egyptian agricultural trade pattern and competitiveness

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## **Chapter 1.**

### **Introduction**

As the globalization Era that has recently enveloped all world countries the domestic markets of each country has also been strongly amalgamated into the international market. Accordingly, the implications of the international trade on the domestic agricultural trade of each country have significantly emerged. However the extend of amalgamation and interaction, would mainly depend upon the trade pattern of that country. These patterns are subject to the influence of domestic as well as international trade policies and factors directly related to crops and the production of goods that can affect the trade of agricultural products.

Therefore, the main objectives of this study are the identification of Egypt's major trade partners, the analysis of the Egypt comparative advantages in agricultural trade, the competitiveness of the Egyptian agricultural exports with respect to the international markets, i.e. to how extend the Egyptian agricultural sector has a greater or lower share in total agricultural exports than they have in the world as a whole, and finally a quantitative outlook of agricultural markets.

The law of comparative advantage refers to the ability of a party (an individual, a firm, or a country) to produce a particular good or service at a lower opportunity cost than another party. It is the ability to produce a product with the highest relative efficiency given all the other products that could be produced. Comparative advantage explains how trade can create value for both parties even when one can produce all goods with fewer resources than the other. The net benefits of such an outcome are called gains from trade.

## Chapter 2.

### Data base and analytical procedures

The study used the data available on trade flows of Egypt and the whole world exports and imports of the concerned commodity groups from the Food Organization of the United Nations (FAO), in addition to the time series set of economically active population and the workers in agriculture sector. The time series set of the GDP was extracted from the data base of the Egyptian Ministry of Economic development. The exchange rate of EGP (Egyptian pound)/US\$ was derived from the bulletin of the Egyptian Central Bank.

#### 2.1. Changing Agricultural Trade Patterns

The selected agricultural indicators used for analyzing the changes in the agricultural trade patterns are calculated for Egypt using (Equation 1 up to Equation 4) for the period 1995-2008.

$$\text{Equation 1} \quad R_{aggdpi} = \frac{(V_{agi})}{(GDP_i)} \%$$

$$\text{Equation 2} \quad R_{agexi} = \frac{(V_{agexi})}{(MEX_i)} \%$$

$$\text{Equation 3} \quad R_{agimi} = \frac{(V_{agimi})}{(MIM_i)} \%$$

$$\text{Equation 4} \quad R_{agempi} = \frac{(N_{agwrt_i})}{(EGPAI)} \%$$

Where:

$R_{aggdpi}$  = Share of agriculture in GDP % in the year i

$R_{agexi}$  = Share of agriculture in merchandise exports in the year i

$R_{agimi}$  = Share of agriculture in merchandise imports in the year i

$R_{agempi}$  = Share of agriculture employment in Economically Active Population in the year i

$V_{agi}$  = Value of agricultural output in the year i

$GDP_i$  = GDP in the year (i)

$V_{agexi}$  = Value of agricultural exports in the year i

$MEX_i$  = Value of Merchandise Exports in the year i

$V_{agimi}$  = Value of agricultural imports in the year i

$MIM_i$  = Value of Merchandise Imports in the year i



$N_{agwri}$  = Number of Agricultural Workers in the year  $i$

$ECPA_i$  = Total Economically Active Population in the year  $i$

The average approximate annual growth rate of the concerned variables was estimated from (Equation 5)

$$\text{Equation 5 } (r) = [\{\ln(X_t) - \ln(X_0)\}/T] \%$$

Where:

$r$  = Average annual Growth Rate between the base year 0 and the concerned year  $t$ ,

$x$  = the concerned variable

$t$  = the concerned year of the time series set,

0 = refers to the base year of the time series set,

$T$  = the number of years included in the time series set.

## **2.2. Analysis of Comparative Advantage**

If the classical Revealed Comparative Advantage (RCA) Index, (Equation 6) formulated by Balassa (1965), is greater than one indicates a comparative advantage and if  $RCA < 1$  depicts a comparative disadvantage. Vollrath, (1987; 1989) examined trends of international competitiveness in agriculture, basing the analysis upon a concept called Revealed competitiveness advantage using other global trade intensity measures than RCA. "Vollrath" identified (RCA) as Relative Export advantage (RXA), (Equation 7). The Logarithm of the Revealed export advantage  $\ln(TXA)$  identifies the relative export advantage (Equation 8). The counterpart of RXA is the Relative Import Advantage Index (RMA), (Equation 9). The Relative Trade Advantage (RTA) considers both exports and imports relative advantages, (Equation 10). The Revealed Competitiveness (RC), (Equation 11) considers the logarithm of both the relative export advantage and the relative import advantage.

The Logarithm of the Relative export advantage  $\ln(TXA)$  is the unambiguous economic interpretation of Revealed comparative advantage (RCA) as being equivalent to deviations of actual from expected trade. As with Balassa's Relative export share definition of revealed comparative advantage (RCA), the other three revealed-Competitiveness Advantage indices differentiate countries that enjoy a relative advantage in a particular commodity from those that do not. Whereas, positive RTA,  $\ln(RXA)$  and RC reveal a comparative advantage, a negative value reveals a comparative disadvantage. Eliminating country and commodity double counting in world trade from all indices make clear distinction between a specific commodity and all other commodities and between a specific country and the rest of the world (Chang, Ha-Joon, (2002, 2008).

$\ln(RXA)$  may be preferable than RCA or even RTA and RC, because the former is less susceptible to "policy induced distortions". On the other hand RTA and RC are adhere more closely to actual

comparative advantage than Ln (RXA) when abstracting from distortion influence. Importance of RTA and RC stems from using export and import data and therefore, embody both the relative demand and relative supply dimensions. Besides, RTA and RC consist with the real world economic phenomenon of two ways trade. However, RC is preferable to RTA at high levels of commodity aggregation. In this case RC balances the supply and demand dimensions of comparative advantage equally. Even though, the main precautions associated with using RC are: (a) The extreme sensitivity to small values of exports and imports of the specified commodity, (b) When the two ways trade does not exist as the case of no imports, then RC would be not identified or equals to zero when there is no exports. To wrap up, RTA index is preferable than RC in two cases: (a) At low levels of commodity aggregation, (b) RTA does not require a country existence of exporting and importing the same commodity. This is because RTA weights the Revealed Comparative Advantage by the relative importance of RXA and RTA. Therefore, The RTA behavioral patterns are not dominant by extremely small export or import values of the specific commodity. The estimation of the comparative advantage and competitiveness advantage indices are based upon trade patterns of Egypt of the set of data presented in (Table 2 up to Table 11).

Equation 6 
$$RCA = (X_{ij}/X_{it})/(X_{nj}/X_{nt})$$

Equation 7 
$$RXA = RCA$$

Equation 8 
$$\ln (RXA) = \ln (RCA)$$

Equation 9 
$$RMA = (M_{ij}/M_{it})/(M_{nj}/M_{nt})$$

Equation 10 
$$RTA = RXA - RMA$$

Equation 11 
$$RC = \ln RXA - \ln RMA$$

Where:

X represents exports value in (000) US\$,

M represents imports value in (000) US\$,

i is the specified country (Egypt),

j is the specified commodity,

t is the total set of commodities exports –

n is a set of comparable Market(s); (World)

Then:

$x_{ij}$  = Exports value in (000) US\$ of Commodity j of Egypt

$x_{it}$  = Exports value of the total set of commodities exports from Egypt minus the specified commodity

$x_{nj}$  = Exports value of the specified commodity of the World market

$x_{nt}$  = value of the total set of commodities exports minus the specified commodity export in the world market

### 2.3. The trade specialization and competitiveness of Egypt

The study is focusing on the trade specialization and competitiveness of Egypt with respect to the markets receiving its agricultural exports. Therefore, the index form (CEP), (Equation 12) will be calculated accordance with Reveal Comparative Advantage (RCA) index as explained by (Equation 6)

CEP index value unity means that the particular sectors have a greater (lower) share in total exports of the individual country than they have in the world as a whole. It points out a relative advantage or disadvantage in the export of these products (Donges, 1982). It should be mentioned that the CEP index is based only on export shares. This way, any possible distortions because of trade policy interventions to the imports in the revealed comparative advantage index can be eliminated.

Equation 12 
$$CEP = (X_{ij}/X_{Tw})/(\sum_{i=1}^n X_{ij}/\sum_{i=1}^n X_{Tw})$$

Where:

X stands for exports value in (000) US\$,

The subscript j refers to the country in question, which is Egypt in this study,

The Subscript w refers to the world market,

The subscript i refers to the 10 agricultural product groups in this study, (table 2 up to table 11).

### 2.4. The Quantitative Outlook of Agricultural Markets

To approach the study's objective on a quantitative outlook of agricultural markets for the next decades and the main factors explaining their evolution, a time series analysis model was generated in order to predict future points in the series (Autoregressive Integrated Moving Average (ARIMA) model. It is one of the popular forecasting models.

### 2.5. Concepts of ARIMA Method

Autoregressive Integrated Moving Average (ARIMA) model was introduced by "Box and Jenkins". Therefore, it is also known as "Box Jenkins Model" for forecasting a variable. It is an extrapolation method for forecasting. Therefore, it requires the historical time series data on the variable under forecasting. Among the extrapolation methods this one is of the most sophisticated method. It incorporates the features of all other methods. However, it does not require from the investigator a priori choice for the initial values of any variable or the values of various parameters. It is robust to handle any data pattern (Abraham and Ledolter, 1983).

Even though, such model involves transformation of the variable, identification of the model, estimation through non-linear method, verification of the model and derivation of forecasts, there are many reasons why an ARIMA model is superior to common time-series analysis and multivariate regressions (Box and McGregor, 1974)

The common problem in time series analysis and multivariate regression is that the error residuals are correlated with their own lagged values (Chatfield, 1996)). This serial correlation violates the standard assumption of the regression model, that disturbances are not correlated with other disturbances. Therefore, the regression analysis and basic time series analysis are no longer efficient among different linear estimations. As the error residuals helps to predict current error residuals, it is an advantage to form a better prediction of the dependent variable using ARIMA. If there are lagged dependent variables set as regressors, regression estimates are biased and inconsistent but can be fixed using ARIMA (Box and Reinsel, 1994). Moreover, ARIMA model takes into account the seasonality of the data.

In words, the ARIMA procedure analyzes and forecasts equally spaced unvaried time series data, transfer function data and intervention data, using the Autoregressive Integrated Moving-Average (ARIMA) or autoregressive moving-average (ARMA) model (Makradakis,, Wheelwright and McGhee, 1983)).

## **2.6. ARIMA Model**

An "ARIMA" model predicts a value in a response time series as a linear combination of its own past values, past errors (also called shocks or innovations), and current and past values of other time series, (Judge, et al, 1985). Then a difference between regression models in which  $Y_i$  is explained by regressors  $X_1 X_2 X_3 \dots X_k$ , and time series as type of "BJ" models is that regressors can be explained by lagged values, and the stochastic error terms (Gujarati, 2004)

The time series models are analyzed based on the assumption that the time series considered are weakly stationary. Therefore, the noise (or residual) series for an ARMA model must be stationary. Both the expected values of the series and its auto-covariance function must be independent of time. In short, the mean and variance for a weakly stationary time series are constant and their covariance is invariant. However, it is known that many economic time series are not stationary (Nelson, 1973), i.e. they are integrated (if a time series is integrated of order 1, i.e., if "I (1)", their first differences are "I (0)" i.e. stationary, (Brockwell, et al., 2002). Therefore, whether to differentiate a time series "d" times to make it stationary and then apply the model ARMA (p, q), you can say that the original time series is ARIMA (p, d, q), (Chatfield, 1996).

The order of an ARIMA model is usually denoted by the notation (Equation 13)

Equation 13                      ARIMA (p, d, q),

Where:

P = the order of the autoregressive part

D = the order of the differencing

Q = the order of the moving-average process

If no differentiations are done (d = 0), the models are usually referred to as (Equation 14)

Equation 14 ARMA (p, q)

Since the IDENTIFY statement specified d = 1, and the final estimate statement specified p= 1 and q = 1, the model to be used in analysis of the time series of RCA Index for the Egyptian Agricultural Export products is; (Equation 15)

Equation 15 ARIMA (1, 1, 1)

The method proposed by "Box and Jenkins, (BJ)" is customarily partitioned in three stages: identification, estimation and diagnostic checking. At the identification stage a tentative ARIMA model is specified for the data generating process on the basis of the autocorrelation pk and partial autocorrelation. For a given sample  $y_1 \dots y_t$ , the former can be estimated by (Equation 16)

$$\text{Equation 16} \quad p_k = \frac{\sum_{t=k}^T (y_t - \bar{y})(y_{t+k} - \bar{y})}{\sum_{t=1}^T (y_t - \bar{y})^2}$$

Where:

$\bar{y}$  = the sample mean.

An alternative, asymptotically equivalent estimate for pk is (Equation 17).

$$\text{Equation 17} \quad \hat{r}_k = \frac{T}{T-K} r_k$$

An estimate of the kth partial autocorrelation coefficient  $\psi_{kk}$  can be obtained by using the Yule-Walker equations. Alternatively,  $\psi_{kk}$  can be estimated by LS using the linear model, (Brockwell, and Davis,(2002).

$$\text{Equation 18} \quad y_t^* = \psi_{k1} y_{t-1}^* + \dots + \psi_{kk} y_{t-k}^* + v_t$$

Where:

$$y_t^* = y_t - \bar{y} \dots$$

To identify integer's p, d, q the following result can be used:

1 If the autocorrelation do not die out rapidly, this indicates non-stationary and differentiating (usually not more than once or twice) and it is suggested until stationary is obtained. Then an ARMA model is identified for differentiating the series

(a) For an MA (q) process, the autocorrelation  $p_k = 0$  for  $k > q$  and the partial autocorrelation taper off.

(b) For an  $AR(p)$ , the partial autocorrelation  $\psi_{kk} = 0$  for  $k > p$  and the autocorrelations taper off.

2 If neither the autocorrelations nor the partial autocorrelations have a cutoff point, an ARMA model may be adequate. The AR and MA degree have to be inferred from the particular pattern of the autocorrelations and partial autocorrelations.

3 Also, if a seasonal ARIMA model is adequate this has to be inferred from the autocorrelations and partial autocorrelations. However, the specification of a tentative ARIMA model by visually inspecting the estimates of these quantities requires some experience.

4 Once the orders of tentative model are specified, its parameters can be estimated.

5 Finally the adequacy of the model may be checked for example by analyzing the residuals or by over fitting the obtained model (Abraham, 1983).

## **Chapter 3.**

### **Results and discussion**

#### **3.1. Changing Agricultural Trade Patterns**

Even though Egyptian agricultural output increased from 10157 million US\$ in 1995 to 25662 million US\$ in 2008, i.e. at annual growth rate of around 7%, its share in the Egyptian GDP ranges from 17% to 14% with an annual average of 16% over that period, (Table 1) because the GDP growth rate during that period was higher, i.e., about 8%. Agricultural exports share in the Egyptian merchandise exports has declined from 11% in the year 1995 up to 7% in the year 2008 with an annual average 9% along the same period. Such decline of agricultural sector share in the Egyptian exports was also due to lower growth rate of about 9% a year while the total merchandise exports grew at 13%. The share of agricultural imports in total merchandise imports has also declined from 29% in 1995 to about 18% in 2008. However, the coverage rate of agricultural exports to agricultural imports has increased over the studied period from 16% to more than 21%. The Table 1 shows that the role of agriculture in employment has declined. The share of agricultural employment in the total economically active population declined from 35% in the year 1995 to less than 26% in the year 2008, with an annual average of 31%. This because the size of agricultural workers was growing at less than 0.5% while that of total economically active population was around 2.7% along the period (1995-2008).

#### **3.2. The Analysis of the Egypt Comparative Advantages in Agricultural Trade**

The Analysis of The Egypt Comparative Advantages has dealt with the Agricultural Trade of the following commodity groups: Meat and meat preparations, Dairy products and bird eggs, Cereals and cereals preparations, Vegetables and Fruits, Sugar, sugar preparations, honey, Feeding stuff of animals, Beverages, Tobacco, Oils and fats, Textile fiber and their wastes.

The study has not restricted the estimated measure of the comparative advantage to only the classical RCA, it applied other more elaborated indices, in order to avoid unfavorable conclusions due to policy distortions and/or the export (supply) pattern and the Import (demand) pattern of the specified commodities. The relative export advantage index, Ln (RXA), may be preferable than RCA or even the relative trade advantage, RTA and the revealed competitiveness index, RC, because the former is less susceptible to "policy induced distortions". On the other hand RTA and RC are adhere more closely to actual comparative advantage than Ln (RXA) when abstracting from distortion influence. Importance of RTA and RC stems from using export and import data and therefore embody both the relative demand and relative supply dimensions. Besides, RTA and RC consist with the real world economic phenomenon of two ways trade. However, RC is preferable to RTA at high levels of commodity aggregation. In this case RC balances the supply and demand dimensions of comparative advantage equally. The RC should not be used when there are small values of exports and imports of

the specified commodity, or in the case of no imports as RC would be not identified or when there is no exports, it equals to zero. RTA index is preferable than RC at low levels of commodity aggregation, and when either the exports or imports of a commodity is not exist.

The analysis investigated the results on base of: If the Relative Export Advantage (RXA) Index of a certain commodity group is greater than one and/or other competitiveness indices are of positive value, then Egypt has a comparative (competitiveness) advantage in such group of agricultural products, other wise ( $RXA < 1$ , or other indices are of negative values), indicate that Egypt has disadvantage in exporting such commodity group to the world market.

Investigation of results of estimated indices is presented in (Table 13 up to Table 22). In lights of these criteria, there are only four agricultural products groups out of ten, where Egypt has competitiveness (comparative) advantage in the world market. These four groups are: Textile and Fibers, Fruits and Vegetables, Cereals and cereal preparations and Sugar and honey.

Surprisingly, that Egypt is net importer of sugar cane, while there is a revealed competitiveness in exports of such group to the world market (Table 17), where the RXA ranged from 1 to 2.5. However, the astonishment will disappear fast, when we know that all sugar products exports from Egypt are under Sugar Confectionery and no exports of real pure sugar, (Soliman and Mashhour, 2000). It should be mentioned that the competitiveness of such group in the world market was not in all concerned time series. It was only over nine years (2000-2008).

Similarly, the cereals and cereal preparation group has shown a competitiveness over the whole concerned period, but two years 1995 and 2008 (Table 15). However, Egypt is the largest importer of wheat in the world over the last decade. In addition Egypt import large amount of corn for poultry and livestock feeding. However the competitiveness advantage of Egypt in cereals export implies the impact of the importance of Egypt in rice export (Soliman, et al., 2003).

On the other hand, the analysis showed that Egypt has extraordinary high competitiveness in other two agricultural products groups. These are Textile and fiber crops and Fruits and Vegetables. The RXA ranged from 6 to 28 for textile and fiber crops and from 1.5 to 7 for fruits and Vegetables, (Table 8), (Table 5), respectively. The main textile and fiber crops for export is the Egyptian cotton (Soliman and Owaida, 2005) and the main exported fruits and vegetables are oranges potatoes, tomatoes and onion (Soliman and Gaber, 2004).

### **3.3. Egyptian Agricultural Export Competitiveness in the World Market**

Trade specialization in the sense of the Revealed Comparative Advantage (RCA) of Balassa (1965), (Equation 6) reflects sectorial competitiveness. However, there is a wide range of modifications commonly used in the economic literature. The specialization indicator used here (CEP) , (Equation 12) is a modification of the classical RCA index, which is often referred to as the ratio of export shares. It reveals the relative comparative advantage of an industry within a country by comparing



the share of that particular industry in the country's total exports to the share of that industry in total world exports at a certain point in time.

Modified RCA Balassa's index called (CEP) has a minimum value of 0 and a maximum value of infinity. If  $CEP > 1$  for a certain commodity group, Egypt has a comparative advantage in that agricultural products group as compared to the World. If CEP for a certain commodity group  $< 1$ , there is a comparative disadvantage of Egypt in that concerned agricultural products group.

### **3.4. A Quantitative Outlook of Agricultural Markets**

This section provides a quantitative outlook of agricultural markets for the next decade. For this purpose a time series analysis model was generated in order to predict future points in the series (Autoregressive Integrated Moving Average (ARIMA) model. The model was used for selected group of agricultural exportable products. The selection based on the RXA results focusing on such agricultural commodity groups that showed comparative advantage ( $RXA > 1$ ). The analysis in the previous sections of this study showed that these groups are (Fruits and Vegetables), (Textile and Fibers), (Cereals and Cereal preparations) and (Sugar and Honey). Even though, these four groups showed RXA index  $> 1$  associated with Positive coefficient of each of other estimated indices: (Ln RXA), (RTA) and (RC), there was a wide variation of RXA values among these four groups and RXA was not  $> 1$  for all concerned years (1995-2008).

#### **3.4.1. Forecast ARIMA Model for Egypt competitiveness in Textile and Fibers Exports**

The best fitted ARMA model applied for Egyptian Textile and Fiber Exports was (0, 0, 1), The model parameters were shown in (Table 23). The model function is shown in (Equation 19), which was used to forecast the values of the relative advantage index for textile and fibers exports of Egypt till the year 2018. Forecasted and actual values with confidence limits are shown (Table 24) and (Figure 1). Forecasting results implies that the relative export advantage of Egypt to the world market seem to decrease over the forthcoming decade..

Equation 19      $RXA = 15.204 + 0.562 \epsilon_t$

#### **3.4.2. Forecast ARIMA Model for Egypt competitiveness in Fruits and Vegetables Exports**

The best fitted ARMA model applied for Egyptian Fruits and Vegetables Exports was (0, 1, 1). The model parameters were shown in (Table 25). The model function is shown in (Equation 20), which was used to forecast the values of the relative advantage index for fruits and vegetables exports of Egypt till the year 2018. Forecasted and actual values with confidence limits are shown (Table 26) and (Figure 2). Forecasting results implies that the relative export advantage of Egypt in Fruits and Vegetables to the world market seem to sharply increase over the forthcoming decade

Equation 20      $RXA = 0.3784 + 1.000 \epsilon_{t-1}$

### **3.4.3. Forecast ARIMA Model for Egypt competitiveness in Cereals and cereal Preparations**

The best fitted ARMA model applied for Egyptian Cereals and Cereal Preparations exports was (1, 0, 1). The model parameters were shown in (Table 27). The model function is shown in (Equation 21), which was used to forecast the values of the relative advantage index for Cereals and Cereal Preparations exports of Egypt till the year 2018. Forecasted and actual values with confidence limits are shown (Table 28) and (Figure 3). Forecasting results implies that the relative export advantage of Egypt in Cereals and Cereal Preparations to the world market seem to sharply increase over the forthcoming decade

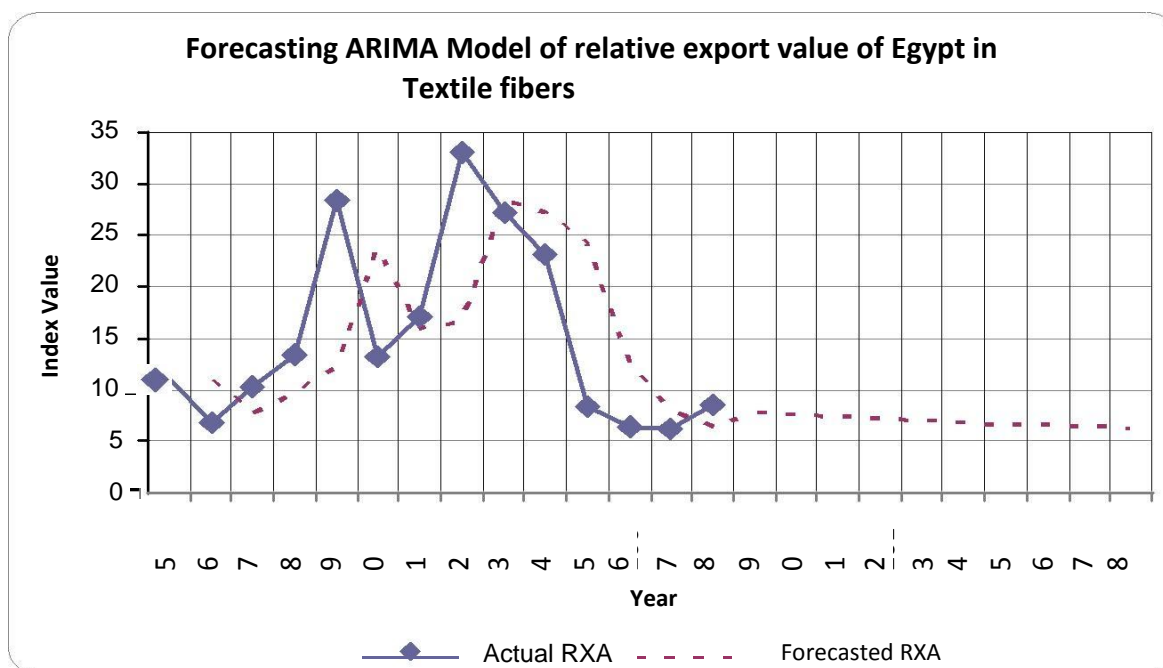
$$\text{Equation 21 } RXA = 1.7312 + 0.2702 RXA_{t-1} - 0.1343 RXA_{t-2} - 0.8051 RXA_{t-3}$$

### **3.4.4. Forecast ARIMA Model for Egypt competitiveness in Sugars and Honey**

The best fitted ARMA model applied for Egyptian Sugars and Honey exports was (1, 1, 2). The model parameters were shown in (Table 29). The model function is shown in (Equation 22), which was used to forecast the values of the relative advantage index for sugar and honey exports of Egypt till the year 2018. Forecasted and actual values with confidence limits are shown (Table 30) and (Figure 4). Forecasting results implies that the relative export advantage of Egypt in Sugar and Honey to the world market seem to slightly increase over the forthcoming decade, with moderate fluctuations.

$$\text{Equation 22 } RXA = 0.0643 - 0.8990 RXA_{t-1} + 1.1555 \varepsilon_{t-1} + 1.000 \varepsilon_{t-2}$$

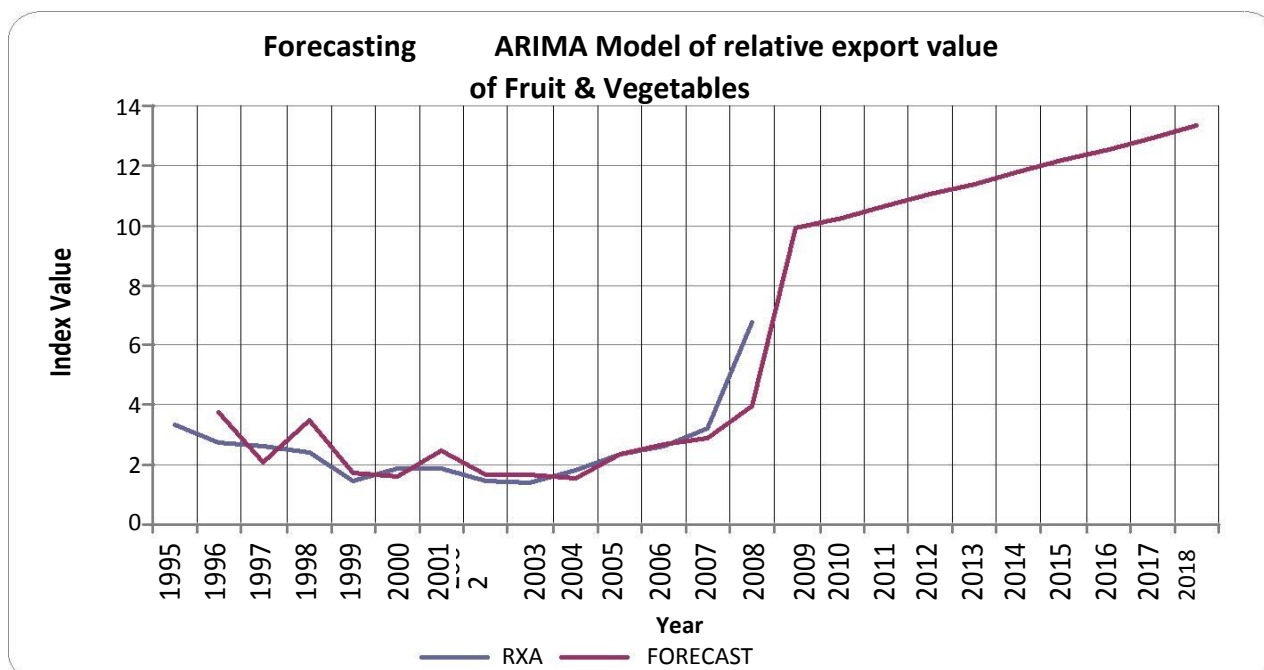
**Figure 1. Forecasting ARIMA Model of relative export value of Egypt in Textile fibers**



Source: Drawn from (

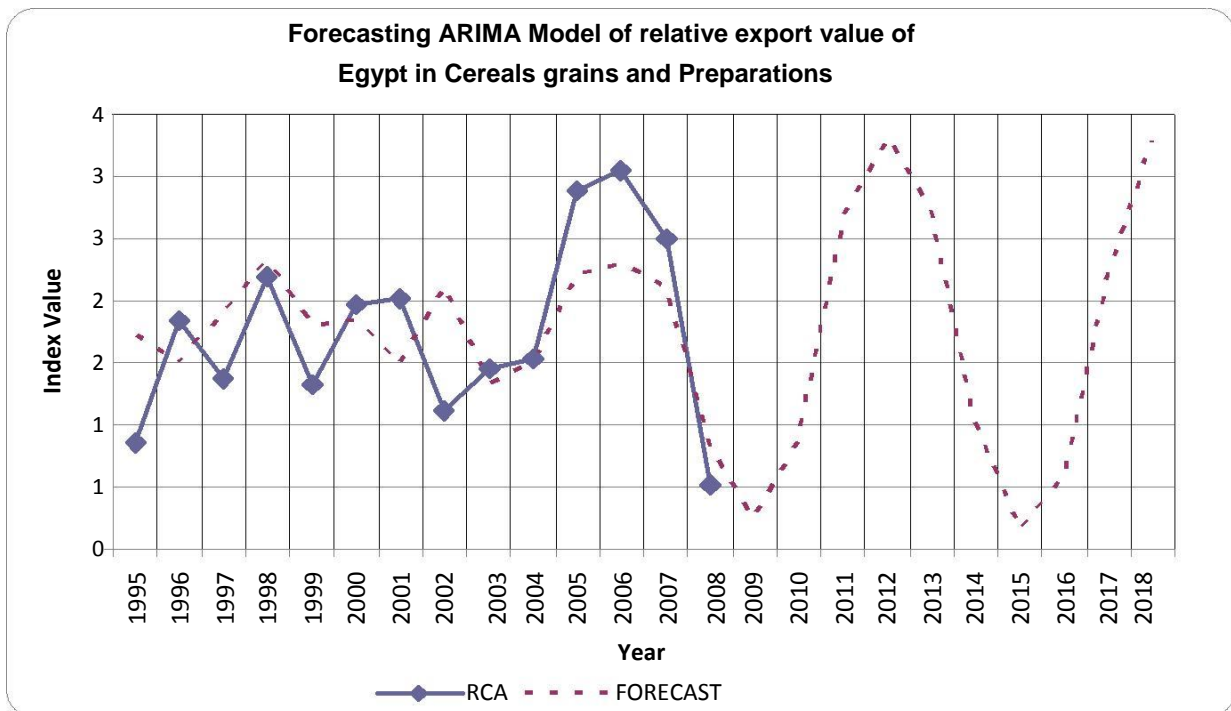
Table Table 24)

**Figure 2. Forecasting ARIMA Model of relative export value of Fruit & Vegetables**



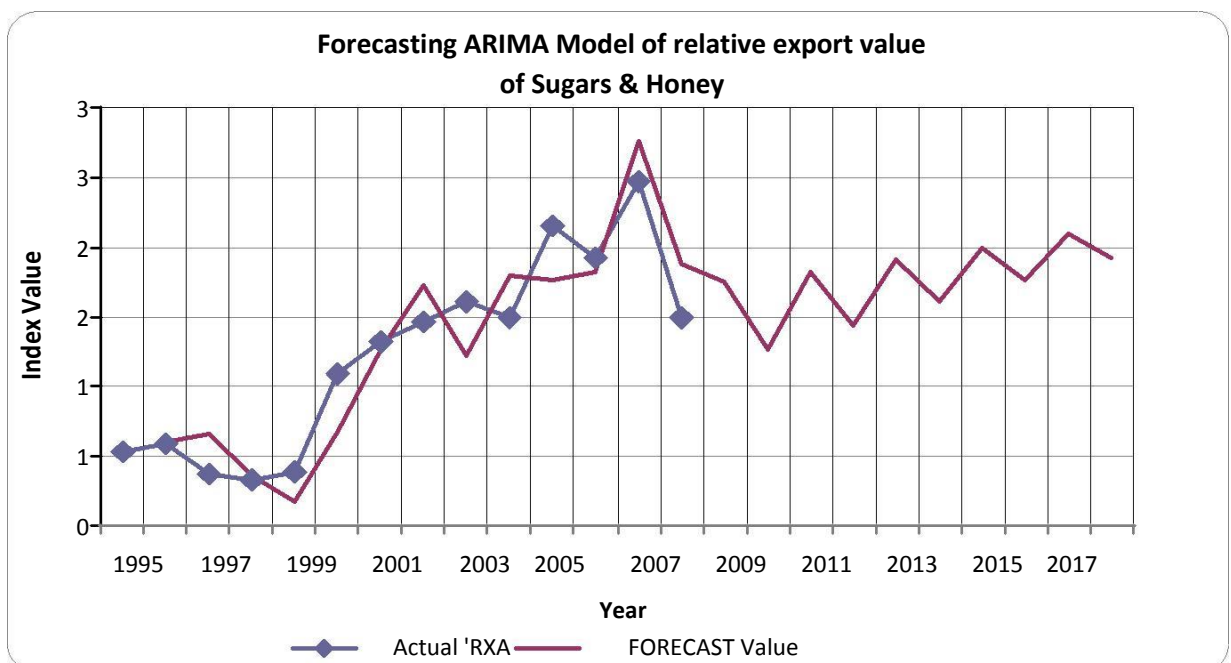
Source: Drawn from (Table 26)

**Figure 3. Forecasting ARIMA Model of relative export value of Egypt in Cereals grains and Preparations**



Source: Drawn from (Table 28)

**Figure 4. Forecasting ARIMA Model of relative export value of Sugars & Honey**



Source: Drawn from (Table 30)



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## Annex

**Table 1. Role of Agriculture in Egyptian Economy**

Year	US\$(2)MillionGDPTotal	Output/GDP(agriculture%)	(3)US\$MillionExportsTotal	Totalexports)/(agricultural%)	(3)US\$MillionImportsTotal	TotalImports)/(agricultural%)	(000)Population ActiveEconomicallyTotal	TotalAgriculture)/In%(Employed
1995	59749	17%	4957	11%	11739	29%	18531	35%
1996	70896	16%	4609	11%	14107	27%	18850	34%
1997	78684	16%	5345	8%	15565	22%	19169	33%
1998	81063	17%	5128	11%	16899	21%	19489	33%
1999	87463	17%	4445	13%	17008	22%	20559	32%
2000	94492	16%	6388	8%	17861	20%	20935	31%
2001	91371	16%	7068	9%	16441	20%	21242	31%
2002	86049	16%	6643	12%	14644	23%	22136	30%
2003	82548	16%	8205	11%	14821	18%	22828	30%
2004	78171	15%	10453	13%	17975	17%	23504	29%
2005	90682	14%	13833	8%	24193	16%	24160	28%
2006	112254	14%	18455	6%	30441	13%	24757	28%
2007	124324	15%	19224	8%	37100	15%	25559	27%
2008	160,388	16%	26,224	7%	48,382	18%	26,213	26%
Annual Average	92,724	16%	10,070	9%	21,227	19%	21,995	31%

Source; Compiled and Calculated from:

(1) Egyptian Ministry of Economic Development (2010) "Economic Indicators", [http://www.mop.gov.eg/English/map\\_E.html](http://www.mop.gov.eg/English/map_E.html)

(2) Xe (the World favorite Currency Site, (2010) ,

[http://www.xe.com/ict/?basecur=USD&historical=true&month=7&day=10&year=2008&sort\\_by=name&image.x=44&image.y=14](http://www.xe.com/ict/?basecur=USD&historical=true&month=7&day=10&year=2008&sort_by=name&image.x=44&image.y=14)

(3) FAOSTAT | © FAO Statistics Division (2011) | January 2011

<http://faostat.fao.org/site/550/DesktopDefault.aspx?PageID=550>

(4) Using (Equation 1 Up to Equation 4)



**Table 2. Egypt Trade of Meat, Meat Preparations and live animals**

Year	Exports (000) US\$			Imports(000) US\$		
	Egypt	% of World	World	Egypt	% of the World	World
1995	7,206	0.013%	56,913,234	367,094	0.65%	56,322,976
1996	9,662	0.017%	57,859,136	255,070	0.45%	56,860,488
1997	12,199	0.022%	55,654,533	276,744	0.51%	54,142,394
1998	8,621	0.017%	52,077,214	336,299	0.64%	52,401,652
1999	5,325	0.010%	51,967,860	440,133	0.85%	52,009,544
2000	4,544	0.009%	53,005,023	484,194	0.90%	54,002,940
2001	7,215	0.013%	54,470,355	344,107	0.63%	55,006,593
2002	7,065	0.013%	55,866,535	347,683	0.61%	57,015,329
2003	10,946	0.017%	64,829,693	221,732	0.34%	64,915,093
2004	15,451	0.021%	74,846,324	228,847	0.31%	74,043,627
2005	11,205	0.013%	85,847,863	353,105	0.42%	83,133,566
2006	5,897	0.006%	92,025,899	526,317	0.59%	89,741,394
2007	7,351	0.007%	106,815,388	627,265	0.60%	105,013,952
2008	8,138	0.006%	129,662,913	487,728	0.39%	125,215,550
Annual average	8,630	0.012%	70,845,855	378,308	0.54%	69,987,507

Source; FAO, Food and Agricultural Organization of the United Nations, FAOSTAT, TRADE, TRADESESTAT, CROPS and LIVESTOCK PRODUCTS and LIVE ANIMALS (<http://faostat.fao.org/site/535/default.aspx#anchor>), <http://faostat.fao.org/site/604/default.aspx#anchor>,

**Table 3. Egypt Trade Dairy Products and Eggs**

Year	Exports (000) US\$			Imports(000) US\$		
	Egypt	% of World	World	Egypt	% of World	World
1995	2,757	0.01%	29,655,792	168,963	0.57%	29,888,050
1996	4,202	0.01%	29,990,191	181,182	0.61%	29,507,834
1997	4,704	0.02%	28,625,399	149,489	0.54%	27,889,263
1998	4,129	0.01%	28,187,317	168,020	0.61%	27,716,339
1999	16,252	0.06%	26,701,533	223,186	0.82%	27,383,207
2000	5,879	0.02%	26,622,119	179,897	0.68%	26,567,272
2001	5,850	0.02%	28,037,558	142,506	0.52%	27,630,802
2002	11,521	0.04%	27,300,560	130,250	0.47%	27,706,850
2003	22,888	0.07%	33,733,752	123,899	0.37%	33,881,767
2004	25,708	0.06%	40,269,811	122,233	0.31%	39,658,967
2005	41,606	0.10%	42,811,574	170,038	0.41%	41,793,725
2006	34,947	0.08%	45,439,154	124,246	0.28%	44,833,217
2007	41,234	0.07%	59,294,008	174,836	0.30%	57,863,213
2008	86,015	0.13%	67,925,730	486,199	0.73%	66,163,539
Annual average	21,978	0.060%	36,756,750	181,782	0.50%	36320288.9

Source; FAO, Food and Agricultural Organization of the United Nations, FAOSTAT, TRADE, TRADESESTAT, CROPS and LIVESTOCK PRODUCTS, <http://faostat.fao.org/site/535/default.aspx#anchor>

**Table 4. Egypt Trade of Cereals and Preparations**

Year	Exports (000) US\$			Imports(000) US\$		
	Egypt	% of World	World	Egypt	% of World	World
1995	61,082	0.11%	57,806,302	1,310,491	2.11%	62,240,042
1996	122,829	0.18%	66,793,430	1,719,790	2.39%	71,846,503
1997	76,395	0.13%	60,384,889	1,257,261	1.99%	63,021,262
1998	140,262	0.25%	56,755,885	1,246,710	2.10%	59,301,746
1999	95,363	0.18%	53,837,013	1,292,501	2.21%	58,462,422
2000	116,773	0.22%	52,915,891	1,291,291	2.24%	57,639,515
2001	143,375	0.27%	54,070,728	1,301,527	2.26%	57,651,906
2002	110,631	0.19%	57,643,452	1,439,876	2.34%	61,550,485
2003	158,567	0.24%	65,014,179	1,160,211	1.67%	69,638,745
2004	236,151	0.31%	76,191,989	1,115,640	1.35%	82,343,206
2005	326,572	0.42%	77,583,852	1,664,642	2.01%	82,889,958
2006	318,884	0.37%	86,689,161	1,549,669	1.69%	91,925,570
2007	423,760	0.35%	119,410,518	2,591,437	2.10%	123,623,997
2008	150,113	0.09%	158,138,025	3,587,431	2.12%	169,460,293
Annual average	177,197	0.238%	74,516,808	1,609,177	2.03%	79,399,689

Source; FAO, Food and Agricultural Organization of the United Nations, FAOSTAT, TRADE, TRADESTAT, CROPS and LIVESTOCK PRODUCTS, <http://faostat.fao.org/site/535/default.aspx#ancor>

**Table 5. Egypt Trade of Fruits and Vegetables**

Year	Exports (000) US\$			Imports(000) US\$		
	Egypt	% of World	World	Egypt	% of World	World
1995	206799	0.29%	70204772	160,588	0.21%	76,137,530
1996	174119	0.24%	72704822	169,406	0.21%	79,600,993
1997	140453	0.20%	69616339	167,422	0.22%	76,047,149
1998	180849	0.26%	70688470	181,224	0.23%	77,443,957
1999	135448	0.19%	71288590	246,996	0.31%	78,816,467
2000	138215	0.20%	67450722	217,827	0.29%	74,970,684
2001	170416	0.25%	69350226	246,646	0.32%	76,405,518
2002	178256	0.24%	75202060	270,972	0.33%	81,106,186
2003	214298	0.24%	90272109	225,091	0.23%	98,217,317
2004	344250	0.34%	101426426	241,600	0.22%	110,620,915
2005	380217	0.34%	112858479	314,153	0.26%	118,710,123
2006	377658	0.31%	123549843	285,700	0.22%	132,442,147
2007	602043	0.40%	150891302	350,771	0.22%	156,820,175
2008	1016856	0.61%	167996763	572,053	0.32%	176,976,986
Annual average	304,277	0.324%	93,821,495	260,746	0.26%	101,022,582

Source; FAO, Food and Agricultural Organization of the United Nations, FAOSTAT, TRADE, TRADESTAT, CROPS and LIVESTOCK PRODUCTS, <http://faostat.fao.org/site/535/default.aspx#ancor>

**Table 6. Egypt Trade of Sugar and Honey (000) US\$**

Year	Exports (000) US\$			Imports(000) US\$		
	Egypt	% of World	World	Egypt	% of World	World
1995	12778	0.07%	19317462	219,125	1.08%	20,232,511
1996	13320	0.07%	19737204	260,580	1.23%	21,228,278
1997	7115	0.04%	19296196	358,289	1.80%	19,890,983
1998	8394	0.04%	18726006	293,547	1.57%	18,707,092
1999	8966	0.05%	16329621	277,697	1.60%	17,394,482
2000	20784	0.14%	15196903	73,870	0.47%	15,711,972
2001	33202	0.19%	17038485	116,786	0.64%	18,178,948
2002	42626	0.25%	17022968	117,017	0.65%	17,931,872
2003	53058	0.28%	18910852	77,282	0.38%	20,273,756
2004	66816	0.32%	21082748	68,387	0.31%	22,411,990
2005	89739	0.37%	24493548	152,640	0.59%	26,059,271
2006	85157	0.28%	30558315	155,703	0.49%	31,966,876
2007	122405	0.40%	30584120	146,171	0.44%	33,156,817
2008	80320	0.25%	31832728	399725	1.13%	35257798
Annual average	46,049	0.215%	21,437,654	194,059	0.85%	22,743,046

Source; FAO, Food and Agricultural Organization of the United Nations, FAOSTAT, TRADE, TRADESTAT, CROPS and LIVESTOCK PRODUCTS, <http://faostat.fao.org/site/535/default.aspx#ancor>

**Table 7. Egypt Trade of Beverages**

Year	Exports (000) US\$			Imports(000) US\$		
	Egypt	% of World	Egypt	% of World	Egypt	% of World
1995	3042	0.01%	31,070,287	1238	0.004%	29794554
1996	1986	0.01%	32,633,526	667	0.002%	31167381
1997	2124	0.01%	33,478,613	2889	0.009%	32442591
1998	2238	0.01%	33,282,970	1314	0.004%	33502004
1999	1713	0.00%	34,806,463	924	0.003%	35246795
2000	3733	0.01%	35,951,906	911	0.003%	34521800
2001	1098	0.00%	34,744,639	650	0.002%	35814376
2002	1847	0.00%	38,981,246	452	0.001%	39077125
2003	4750	0.01%	46,682,957	698	0.002%	46525796
2004	3590	0.01%	55,867,627	1024	0.002%	52978840
2005	4525	0.01%	59,682,718	773	0.001%	56436463
2006	3152	0.00%	64,226,139	1229	0.002%	63467372
2007	2634	0.00%	76,266,269	6540	0.009%	76719715
2008	14868	0.02%	81,804,521	8855	0.011%	82667969
Annual average	3,664	0.008%	16,872	2,012	0.004%	46,454,484

Source; FAO, Food and Agricultural Organization of the United Nations, FAOSTAT, TRADE, TRADESTAT, CROPS and LIVESTOCK PRODUCTS, <http://faostat.fao.org/site/535/default.aspx#ancor>

**Table 8. Egypt Trade of Textile Fibers (000) US\$**

Year	Exports (000) US\$			Imports(000) US\$		
	Egypt	% of World	World	Egypt	% of World	World
1995	166388	0.95%	17,490,487	59504	0.308%	19335059
1996	101021	0.64%	15,779,530	67864	0.379%	17892420
1997	116455	0.76%	15,424,063	22761	0.130%	17513478
1998	163118	1.28%	12,738,302	20466	0.143%	14304445
1999	243728	2.33%	10,454,988	18718	0.154%	12122875
2000	141818	1.23%	11,527,001	12039	0.092%	13063742
2001	196826	1.77%	11,110,381	28876	0.231%	12477005
2002	343996	3.17%	10,851,384	12642	0.117%	10820637
2003	385406	2.85%	13,511,620	21651	0.166%	13005816
2004	501580	3.09%	16,239,668	103338	0.626%	16517852
2005	195473	1.25%	15,627,701	60143	0.377%	15936120
2006	147685	0.86%	17,248,333	78100	0.434%	17985668
2007	171694	0.94%	18,197,432	76845	0.425%	18069012
2008	204587	1.32%	15,466,927	153817	0.839%	18331540
Annual average	219,984	1.527%	14,404,844	52,626	0.339%	15,526,834

Source; FAO, Food and Agricultural Organization of the United Nations, FAOSTAT, TRADE, TRADESTAT, CROPS and LIVESTOCK PRODUCTS, <http://faostat.fao.org/site/535/default.aspx#ancor>

**Table 9. Egypt Trade of Tobacco**

Year	Exports (000) US\$			Imports(000) US\$		
	Egypt	% of World	World	Egypt	% of World	World
1995	351	0.00%	22424779	141998	0.684%	20757315
1996	217	0.00%	25946941	173787	0.775%	22421995
1997	31	0.00%	26213243	163513	0.701%	23341685
1998	34	0.00%	24572315	220495	0.989%	22286933
1999	862	0.00%	22128158	236090	1.055%	22374658
2000	5352	0.02%	22357967	267552	1.224%	21852280
2001	3403	0.02%	20755394	237021	1.047%	22629305
2002	392	0.00%	20374031	218759	0.972%	22496856
2003	1053	0.00%	21732789	188619	0.775%	24330520
2004	181	0.00%	23972057	226137	0.818%	27631556
2005	336	0.00%	26062859	180327	0.618%	29157412
2006	3748	0.01%	27258190	211232	0.702%	30109629
2007	347	0.00%	29058716	231139	0.720%	32114166
2008	347	0.00%	33230346	295050	0.843%	35014763
Annual average	1,190	0.005%	24,720,556	213,694	0.839%	25,465,648

Source; FAO, Food and Agricultural Organization of the United Nations, FAOSTAT, TRADE, TRADESTAT, CROPS and LIVESTOCK PRODUCTS, <http://faostat.fao.org/site/535/default.aspx#ancor>

**Table 10. Egypt Trade of Fodder & Feeding stuff**

Year	Exports (000) US\$			Imports(000) US\$		
	Egypt	% of World	World	Egypt	% of World	World
1995	10155	0.06%	18070575	132463	132463	19513981
1996	8795	0.04%	21369139	132463	132463	22731853
1997	11859	0.05%	22069424	132463	132463	23182602
1998	5473	0.03%	18720682	132463	132463	21015139
1999	5197	0.03%	17417320	132463	132463	18941484
2000	3172	0.02%	18354877	132463	132463	20140549
2001	817	0.00%	19918965	132463	132463	21728237
2002	1041	0.01%	20706366	132463	132463	22654958
2003	774	0.00%	23971423	132463	132463	25811768
2004	7484	0.03%	27327625	132463	132463	31298146
2005	8116	0.03%	27977368	132463	132463	30580500
2006	4308	0.01%	30321795	132463	132463	33106586
2007	7667	0.02%	38936686	132463	132463	42683726
2008	7160	0.01%	51332820	132463	132463	56878646
Annual average	5,858	0.023%	25,463,933	132463	132463	19513981

Source; FAO, Food and Agricultural Organization of the United Nations, FAOSTAT, TRADE, TRADESTAT, CROPS and LIVESTOCK PRODUCTS, <http://faostat.fao.org/site/535/default.aspx#ancor>

**Table 11. Egypt Trade of Oils and Fat**

Year	Exports (000) US\$			Imports(000) US\$		
	Egypt	% of World	World	Egypt	% of World	World
1995	160	0.010%	1584952	22864	1.371%	1667444
1996	158	0.012%	1367378	22864	1.513%	1511294
1997	742	0.055%	1354392	24676	1.741%	1417633
1998	10	0.001%	1415519	39443	2.546%	1549445
1999	29	0.003%	1137712	19202	1.411%	1360685
2000	21	0.002%	1002207	6835	0.584%	1170524
2001	29	0.003%	949788	1503	0.141%	1063382
2002		0.0%	1158175	747	0.062%	1203607
2003	19	0.001%	1341368	42	0.003%	1421982
2004		0.0%	1753171	141	0.008%	1763684
2005		0.000%	1598710	779	0.047%	1643722
2006	191	0.011%	1677455	144	0.008%	1708952
2007	17	0.001%	2258494	102	0.005%	2242704
2008	28	0.001%	3359463	551	0.017%	3314591
Annual average	128	0.008%	1,568,485	9,992	0.607%	1,645,689

Source; FAO, Food and Agricultural Organization of the United Nations, FAOSTAT, TRADE, TRADESTAT, CROPS and LIVESTOCK PRODUCTS, <http://faostat.fao.org/site/535/default.aspx#ancor>

**Table 12. Annual average of Agricultural Trade Value (000) US\$ of Egypt and The World (1995-2008)**

Commodity Group	Exports (000) US\$			Imports(000) US\$			Egypt % (Export/ Import)
	Egypt	Of the World	World	Egypt	of the World	World	
Textile Fibers	220	1.53	14,405	53	0.34	15,527	418
Fruits and Vegetables	304	0.32	93,821	261	0.26	101,023	117
Cereals	177	0.24	74,517	1,609	2.03	79,400	11
Sugar and Honey	46	0.22	21,438	194	0.85	22,743	24
Dairy Products and Eggs	22	0.06	36,757	182	0.50	36,320	12
Fodder & Feeding stuff	6	0.02	25,464	132	132463	19,514	4
Meat, Meat Preparations and live animals	9	0.01	70,846	378	0.54	69,988	2
Oils and Fat	0	0.01	1,568	10	0.61	1,646	1
Beverages	4	0.01	17	2	0.00	46,454	182
Tobacco	1	0.01	24,721	214	0.84	25,466	1
Total Commodity Groups	789	3.19	363,553	3,035	11.92	418,080	26

Source: Compiled and Calculated from : (Table 2 Up to Table 11)

**Table 13. Egypt Revealed comparative advantage in Meat, Meat Preparations and Live Animals**

Year	RCA	Ln RXA	RMA	ln RMA	RTA	RC	CEP
1995	0.106	-2.245	0.884	-0.123	-0.778	-2.122	0.105
1996	0.152	-1.884	0.529	-0.637	-0.377	-1.247	0.149
1997	0.233	-1.456	0.669	-0.402	-0.436	-1.054	0.227
1998	0.129	-2.051	0.812	-0.208	-0.683	-1.843	0.127
1999	0.074	-2.609	1.036	0.036	-0.963	-2.645	0.073
2000	0.069	-2.680	1.125	0.118	-1.057	-2.798	0.068
2001	0.089	-2.415	0.813	-0.207	-0.724	-2.208	0.088
2002	0.073	-2.616	0.810	-0.211	-0.737	-2.405	0.073
2003	0.096	-2.349	0.661	-0.414	-0.566	-1.935	0.095
2004	0.096	-2.340	0.627	-0.466	-0.531	-1.873	0.095
2005	0.074	-2.608	0.701	-0.356	-0.627	-2.253	0.073
2006	0.043	-3.153	1.152	0.142	-1.109	-3.295	0.043
2007	0.040	-3.212	0.997	-0.003	-0.957	-3.209	0.040
2008	0.037	-3.308	0.469	-0.758	-0.432	-2.550	0.036

Source: Calculated from (Table 2) Using (Equation 6 Up to Equation 12)

**Table 14. Revealed comparative advantage of Egypt in Dairy Products and Eggs**

Year	RXA	Ln RXA	RMA	Ln RMA	RTA	RC	CEP
1995	0.072	-2.630	0.766	-0.267	1.589	-2.363	0.077
1996	0.118	-2.136	0.756	-0.279	2.418	-1.857	0.125
1997	0.161	-1.825	0.718	-0.332	1.026	-1.493	0.170
1998	0.106	-2.246	0.773	-0.257	1.324	-1.989	0.112
1999	0.418	-0.873	0.994	-0.006	1.705	-0.867	0.434
2000	0.166	-1.797	0.827	-0.190	1.570	-1.607	0.175
2001	0.131	-2.031	0.672	-0.398	1.141	-1.633	0.139
2002	0.231	-1.467	0.624	-0.471	1.911	-0.996	0.242
2003	0.365	-1.009	0.725	-0.322	2.545	-0.687	0.380
2004	0.281	-1.269	0.639	-0.448	1.758	-0.821	0.295
2005	0.528	-0.639	0.683	-0.381	1.932	-0.258	0.544
2006	0.495	-0.704	0.518	-0.658	0.495	-0.046	0.511
2007	0.389	-0.944	0.487	-0.720	0.389	-0.224	0.406
2008	0.724	-0.323	0.941	-0.061	-0.217	-0.262	0.736

Source: Calculated from (Table 3) Using (Equation 6 Up to Equation 12)

**Table 15. Revealed comparative advantage of Egypt by Cereals and Cereal Preparations**

Year	RCA	Ln RXA	RMA	Ln RMA	RTA	RC	CEP
1995	0.858	-0.154	4.164	1.426	-3.306	-1.580	0.873
1996	1.845	0.613	4.674	1.542	-2.828	-0.929	1.644
1997	1.376	0.319	3.751	1.322	-2.375	-1.003	1.310
1998	2.189	0.783	3.699	1.308	-1.510	-0.525	1.893
1999	1.316	0.274	3.670	1.300	-2.355	-1.026	1.262
2000	1.975	0.680	3.840	1.346	-1.865	-0.665	1.752
2001	2.009	0.697	4.356	1.472	-2.348	-0.774	1.771
2002	1.119	0.113	4.835	1.576	-3.715	-1.463	1.100
2003	1.444	0.367	5.157	1.640	-3.714	-1.273	1.366
2004	1.532	0.426	4.017	1.390	-2.485	-0.964	1.432
2005	2.895	1.063	5.303	1.668	-2.409	-0.605	2.356
2006	3.052	1.116	4.797	1.568	-1.745	-0.452	2.442
2007	2.499	0.916	5.862	1.768	-3.363	-0.853	2.070
2008	0.512	-0.669	3.987	1.383	-3.475	-2.052	0.552

Source: Calculated from (Table 4) Using (Equation 6 Up to Equation 12)

Table 16. Revealed comparative advantage of Egypt in Fruits and Vegetables

Year	RXA	Ln RXA	RMA	Ln RMA	RTA	RC	CEP
1995	3.344	1.207	0.253	-1.373	3.091	2.580	2.434
1996	2.719	1.000	0.231	-1.464	2.488	2.464	2.140
1997	2.600	0.956	0.263	-1.335	2.337	2.290	2.088
1998	2.410	0.880	0.264	-1.332	2.146	2.212	1.960
1999	1.463	0.381	0.336	-1.092	1.128	1.473	1.354
2000	1.858	0.620	0.315	-1.155	1.543	1.775	1.626
2001	1.889	0.636	0.383	-0.960	1.507	1.597	1.642
2002	1.470	0.386	0.406	-0.901	1.064	1.287	1.359
2003	1.430	0.358	0.413	-0.884	1.017	1.242	1.329
2004	1.776	0.575	0.416	-0.877	1.360	1.452	1.569
2005	2.321	0.842	0.405	-0.903	1.916	1.745	1.886
2006	2.585	0.950	0.368	-0.999	2.217	1.948	2.030
2007	3.227	1.172	0.329	-1.112	2.898	2.284	2.327
2008	6.735	1.907	0.372	-0.989	6.363	2.896	3.518

Source: Calculated from (Table 5) Using (Equation 6 Up to Equation 12)

Table 17. Revealed comparative advantage of Egypt in Sugar and Honey

Year	RCA	Ln RXA	RMA	Ln RMA	RTA	RC	CEP
1995	0.536	-0.624	1.531	0.426	-0.996	-1.050	0.547
1996	0.593	-0.522	1.584	0.460	-0.991	-0.982	0.603
1997	0.372	-0.990	2.655	0.976	-2.283	-1.966	0.382
1998	0.334	-1.097	2.142	0.762	-1.809	-1.859	0.343
1999	0.382	-0.962	2.041	0.714	-1.659	-1.676	0.391
2000	1.091	0.087	0.570	-0.562	0.520	0.649	1.086
2001	1.321	0.279	0.850	-0.162	0.471	0.441	1.302
2002	1.465	0.382	0.884	-0.123	0.581	0.505	1.436
2003	1.610	0.476	0.762	-0.272	0.848	0.748	1.571
2004	1.494	0.402	0.639	-0.448	0.855	0.849	1.465
2005	2.146	0.764	1.005	0.005	1.141	0.758	2.051
2006	1.928	0.656	0.937	-0.065	0.991	0.722	1.850
2007	2.463	0.901	0.728	-0.317	1.735	1.219	2.334
2008	1.492	0.400	1.485	0.395	0.007	0.005	1.467

Source: Calculated from (Table 7) Using (Equation 6 Up to Equation 12)



**Table 18. Revealed comparative advantage of Egypt in Total Beverages**

Year	RXA	Ln RXA	RMA	Ln RMA	RTA	RC	CEP
1995	0.076	-2.581	0.005	-5.237	0.070	2.655	0.081
1996	0.051	-2.980	0.002	-5.996	0.048	3.016	0.054
1997	0.061	-2.794	0.011	-4.488	0.050	1.694	0.066
1998	0.048	-3.041	0.005	-5.366	0.043	2.325	0.052
1999	0.032	-3.435	0.003	-5.836	0.029	2.401	0.035
2000	0.076	-2.580	0.003	-5.816	0.073	3.236	0.082
2001	0.019	-3.944	0.002	-6.116	0.017	2.172	0.021
2002	0.025	-3.696	0.001	-6.548	0.023	2.853	0.027
2003	0.052	-2.953	0.003	-5.892	0.049	2.939	0.057
2004	0.027	-3.610	0.004	-5.586	0.023	1.976	0.030
2005	0.039	-3.251	0.002	-6.146	0.037	2.895	0.042
2006	0.030	-3.514	0.003	-5.683	0.026	2.169	0.033
2007	0.018	-3.994	0.013	-4.345	0.005	0.351	0.020
2008	0.098	-2.320	0.013	-4.370	0.086	2.050	0.106

Source: Calculated from (Table 7, using (Equation 6 Up to Equation 12)

**Table 19. Revealed comparative advantage of Egypt in Total Textile Fibers**

Year	RCA	ln RXA	RMA	ln RMA	RTA	RC	CEP
1995	11.053	2.403	0.412	-0.887	10.641	3.290	7.860
1996	6.902	1.932	0.464	-0.768	6.438	2.700	5.722
1997	10.330	2.335	0.171	-1.767	10.159	4.102	7.816
1998	13.499	2.603	0.179	-1.718	13.320	4.320	9.810
1999	28.398	3.346	0.183	-1.698	28.215	5.045	16.612
2000	13.232	2.583	0.110	-2.207	13.122	4.789	9.766
2001	17.173	2.843	0.301	-1.201	16.872	4.044	11.835
2002	33.036	3.498	0.155	-1.864	32.880	5.362	18.176
2003	27.193	3.303	0.330	-1.109	26.863	4.412	15.971
2004	23.182	3.143	1.343	0.295	21.839	2.848	14.274
2005	8.312	2.118	0.641	-0.445	7.671	2.562	7.002
2006	6.477	1.868	0.834	-0.182	5.643	2.050	5.685
2007	6.142	1.815	0.705	-0.349	5.437	2.165	5.503
2008	8.649	2.157	1.081	0.078	7.568	2.080	7.689

Source: Calculated from (Table 8) Using (Equation 6 Up to Equation 12)

**Table 20. Revealed comparative advantage of Egypt in Tobacco**

	RXA	ln RXA	RMA	ln RMA	RTA	RC	CEP
1995	0.012	-4.399	0.939	-0.063	-0.927	-4.337	0.013
1996	0.007	-4.953	0.970	-0.031	-0.962	-4.922	0.007
1997	0.001	-6.764	0.953	-0.048	-0.952	-6.717	0.001
1998	0.001	-6.907	1.303	0.264	-1.302	-7.172	0.001
1999	0.026	-3.637	1.310	0.270	-1.284	-3.907	0.028
2000	0.182	-1.706	1.562	0.446	-1.380	-2.152	0.190
2001	0.105	-2.257	1.431	0.358	-1.326	-2.615	0.110
2002	0.011	-4.554	1.349	0.300	-1.339	-4.853	0.011
2003	0.026	-3.648	1.612	0.477	-1.586	-4.125	0.027
2004	0.003	-5.698	1.805	0.591	-1.802	-6.289	0.003
2005	0.007	-4.972	1.065	0.063	-1.058	-5.034	0.007
2006	0.088	-2.429	1.376	0.319	-1.288	-2.748	0.091
2007	0.007	-5.000	1.213	0.193	-1.206	-5.193	0.007
2008	0.006	-5.136	1.087	0.083	-1.081	-5.219	0.006

Source: Calculated from (Table 9) Using (Equation 6 Up to Equation 12)

**Table 21. Revealed comparative advantage of Egypt in total Fodder & Feeding stuff**

	RCA	Ln RXA	RMA	ln RMA	RTA	RC	CEP
1995	0.454	-0.789	0.932	-0.071	-0.478	-0.718	0.464
1996	0.357	-1.030	1.138	0.130	-0.781	-1.159	0.368
1997	0.544	-0.608	1.395	0.333	-0.850	-0.941	0.556
1998	0.217	-1.530	1.606	0.474	-1.390	-2.004	0.224
1999	0.206	-1.582	1.449	0.371	-1.244	-1.953	0.213
2000	0.132	-2.026	1.939	0.662	-1.807	-2.688	0.137
2001	0.026	-3.645	2.246	0.809	-2.220	-4.454	0.027
2002	0.028	-3.593	2.155	0.768	-2.127	-4.361	0.029
2003	0.017	-4.059	2.550	0.936	-2.533	-4.995	0.018
2004	0.122	-2.107	2.273	0.821	-2.152	-2.928	0.127
2005	0.157	-1.854	1.382	0.323	-1.225	-2.177	0.162
2006	0.091	-2.400	0.963	-0.038	-0.872	-2.362	0.094
2007	0.110	-2.204	1.032	0.031	-0.922	-2.236	0.115
2008	0.077	-2.558	0.403	-0.908	-0.326	-1.650	0.081

Source: Calculated from (Table 10) Using (Equation 6 Up to Equation 12)

**Table 22. Revealed comparative advantage of Egypt in Vegetal and animal Oils and Fats**

Year	RXA	Ln RXA	RMA	Ln RMA	RTA	RC	CEP
1995	0.083	-2.487	1.908	0.646	-1.824	-3.133	0.083
1996	0.103	-2.273	1.915	0.650	-1.812	-2.923	0.103
1997	0.567	-0.568	2.410	0.880	-1.844	-1.448	0.567
1998	0.005	-5.222	3.384	1.219	-3.379	-6.441	0.005
1999	0.018	-4.011	1.736	0.552	-1.718	-4.563	0.018
2000	0.017	-4.099	0.720	-0.329	-0.703	-3.770	0.017
2001	0.020	-3.895	0.187	-1.677	-0.167	-2.218	0.020
2002			0.084	-2.480	-0.084	2.480	
2003	0.008	-4.839	0.006	-5.129	0.002	0.290	0.008
2004			0.017	-4.082	-0.017	4.082	
2005			0.081	-2.517	-0.081	2.517	
2006	0.075	-2.584	0.016	-4.127	0.059	1.542	0.076
2007	0.004	-5.431	0.008	-4.888	-0.003	-0.543	0.004
2008	0.005	-5.333	0.021	-3.856	-0.016	-1.477	0.005

Source: Calculated from (Table 11) Using (Equation 6 Up to Equation 12)

**Table 23. Estimated Parameters of Relative Export Advantage Index of Egypt in Textile Fibers**

Variable	Estimated Coefficient.	Standard Error.	T -value	Pr >  t
MA0,1	-0.562	0.2404	-2.34	0.0376
MU	15.204	3.2662	4.65	0.0006

Source: Estimated from data in (Table 19)

**Table 24. Forecasts for the Export Comparative Advantage Index of Egypt in Textiles and Fiber Crops**

Year	Actual RXA	Forecasted RXA	Standard Error	95% Confidence limits		RESIDUAL
				Minimum	Maximum	
1995	11.05		9.509	-7.775	29.500	
1996	6.90	10.86	9.509	-10.832	26.443	-3.960
1997	10.33	7.81	9.509	-9.196	28.079	2.524
1998	13.50	9.44	9.509	-6.451	30.824	4.058
1999	28.40	12.19	9.509	5.089	42.364	16.212
2000	13.23	23.73	9.509	-2.696	34.580	-10.495
2001	17.17	15.94	9.509	-1.996	35.280	1.231
2002	33.04	16.64	9.509	9.675	46.951	16.393
2003	27.19	28.31	9.509	8.674	45.950	-1.120
2004	23.18	27.31	9.509	5.495	42.770	-4.130
2005	8.31	24.13	9.509	-6.143	31.132	-15.821
2006	6.48	12.49	9.509	-10.688	26.587	-6.018
2007	6.14	7.95	9.509	-12.187	25.089	-1.807
2008	8.65	6.45	9.509	-10.787	26.488	2.1977
2009		7.85	9.509	-7.775	29.500	-3.960
2010		7.66	11.737	-15.345	30.665	
2011		7.47	13.605	-19.197	34.135	
2012		7.28	15.246	-22.604	37.161	
2013		7.09	16.727	-25.697	39.872	
2014		6.90	18.087	-28.553	42.346	
2015		6.71	19.351	-31.222	44.634	
2016		6.52	20.538	-33.739	46.770	
2017		6.32	21.660	-36.128	48.778	
2018		6.13	22.727	-38.409	50.677	

Source: Estimated using (Equation 19)

**Table 25. Estimated Parameters of Relative Export Advantage Index of Egypt in Fruits and vegetables**

Variable	Estimated Coefficient.	Standard Error.	T -value	Pr >  t
MA1,1	"- 1.000"	0.02217	4.51	0.0009
Constant	0.3784	0.4795	0.79	0.4467

Source: Estimated from Data of (Table 16)

**Table 26. Forecasts for the Export Comparative Advantage Index of Egypt in Fruits and Vegetables**

Year	Actual RXA	Forecasted RXA	Slandered Error	95% Confidence limits		RESIDUAL
				Minimum	Maximum	
1995	3.34					
1996	2.72	3.72	0.998	1.766	5.679	-1.0034
1997	2.60	2.09	0.998	0.138	4.051	0.5058
1998	2.41	3.48	0.998	1.528	5.441	-1.0743
1999	1.46	1.71	0.998	-0.242	3.671	-0.2512
2000	1.86	1.59	0.998	-0.366	3.547	0.2678
2001	1.89	2.50	0.998	0.548	4.461	-0.6153
2002	1.47	1.65	0.998	-0.304	3.609	-0.1820
2003	1.43	1.67	0.998	-0.290	3.624	-0.2368
2004	1.78	1.57	0.998	-0.385	3.529	0.2046
2005	2.32	2.36	0.998	0.403	4.316	-0.0383
2006	2.59	2.66	0.998	0.705	4.618	-0.0760
2007	3.23	2.89	0.998	0.931	4.844	0.3397
2008	6.73	3.95	0.998	1.989	5.902	2.7892
2009		9.90	0.998	7.946	11.859	
2010		10.28	2.232	5.906	14.656	
2011		10.66	2.995	4.789	16.529	
2012		11.04	3.600	3.983	18.093	
2013		11.42	4.116	3.348	19.484	
2014		11.79	4.575	2.828	20.761	
2015		12.17	4.992	2.390	21.957	
2016		12.55	5.376	2.014	23.089	
2017		12.93	5.735	1.690	24.170	
2018		13.31	6.073	1.406	25.211	

Source: Estimated Using (Table 20)

**Table 27. Estimated Parameters of Relative Export Advantage Index of Egypt in Cereals**

Variable	Estimated Coefficient.	Standard Error.	T -value	Pr >  t
RA1,1	0.2702	0.2932	0.92	0.3783
AR1,2	-0.1343	0.3064	0.44	0.6705
AR1,3	-0.8051	0.3618	-2.23	0.0503
MU	1.7312	0.1151	15.04	<0.0001

Source: Estimated from Data of (Table 15)

**Table 28. Forecasts for the Export Comparative Advantage Index of Egypt in Cereals**

Year	Actual RXA	Forecasted RXA	Slandered Error	95% Confidence limits		RESIDUAL
				Minimum	Maximum	
1995	0.86	1.73	0.631	0.495	2.967	-0.873
1996	1.85	1.50	0.631	0.259	2.731	0.350
1997	1.38	1.88	0.631	0.643	3.115	-0.503
1998	2.19	2.32	0.631	1.087	3.559	-0.134
1999	1.32	1.81	0.631	0.575	3.047	-0.495
2000	1.98	1.84	0.631	0.607	3.080	0.132
2001	2.01	1.48	0.631	0.248	2.720	0.525
2002	1.12	2.11	0.631	0.872	3.344	-0.989
2003	1.44	1.33	0.631	0.096	2.568	0.112
2004	1.53	1.51	0.631	0.276	2.748	0.020
2005	2.90	2.21	0.631	0.973	3.445	0.686
2006	3.05	2.30	0.631	1.067	3.540	0.748
2007	2.50	2.09	0.631	0.856	3.328	0.407
2008	0.51	0.82	0.631	-0.412	2.061	-0.312
2009		0.24	0.631	-1.001	1.471	
2010		0.87	0.653	-0.408	2.153	
2011		2.68	0.654	1.399	3.964	
2012		3.31	0.849	1.643	4.972	
2013		2.72	0.894	0.969	4.472	
2014		1.02	0.894	-0.731	2.774	
2015		0.14	1.015	-1.852	2.127	
2016		0.60	1.074	-1.506	2.704	
2017		2.21	1.074	0.106	4.315	
2018		3.30	1.158	1.027	5.565	

Source: Estimated Using (Equation 21)

**Table 29. Estimated Parameters of Relative Export Advantage Index of Egypt in Sugar and Honey**

Variable	Estimated Coefficient.	Standard Error.	T -value	Pr >  t
AR1,1	- 0.8990	0.3620	-2.48	0.0348
MA1,1	- 1.1555	0.2332	-4.95	0.0008
MA1,2	-1.0000	0.4631	-2.16	0.0591
MU	0.0643	0.1278	0.50	0.6268

Source: Estimated from Data of (Table 17)

**Table 30. Forecasts for the Export Comparative Advantage Index of Egypt in Sugars and Honey**

Year	Actual RXA	Forecasted RXA	Slandered Error	95% Confidence limits		RESIDUAL
				Minimum	Maximum	
1995	0.54					
1996	0.59	0.60	0.334	-0.054	1.255	-0.007
1997	0.37	0.66	0.334	0.001	1.310	-0.283
1998	0.33	0.36	0.334	-0.296	1.012	-0.024
1999	0.38	0.18	0.334	-0.475	0.834	0.203
2000	1.09	0.67	0.334	0.017	1.326	0.420
2001	1.32	1.26	0.334	0.609	1.918	0.058
2002	1.47	1.72	0.334	1.068	2.377	-0.257
2003	1.61	1.22	0.334	0.563	1.872	0.392
2004	1.49	1.80	0.334	1.143	2.452	-0.304
2005	2.15	1.76	0.334	1.108	2.416	0.384
2006	1.93	1.82	0.334	1.168	2.477	0.106
2007	2.46	2.75	0.334	2.098	3.407	-0.289
2008	1.49	1.88	0.334	1.221	2.530	-0.384
2009		1.75	0.334	1.100	2.409	
2010		1.26	0.536	0.206	2.308	
2011		1.83	0.863	0.135	3.518	
2012		1.44	0.971	-0.467	3.341	
2013		1.91	1.170	-0.385	4.203	
2014		1.61	1.260	-0.863	4.076	
2015		2.00	1.411	-0.764	4.766	
2016		1.77	1.491	-1.154	4.691	
2017		2.10	1.615	-1.065	5.264	
2018		1.92	1.689	-1.387	5.235	

Source: Estimated Using (Equation 22)

